

**Work Order ID 58748**

Tuesday, May 18, 2010 11:11:12 AM

Page 1

Item ID: D2580-1

Accept



Setup Start



Revision ID:

Item Name: 205 Skidtube bent detail

Stop



Start Date: 5/18/2010 Start Qty: 2.00



Cust Item ID:

Required Date: 5/31/2010 Req'd Qty: 2.00



Customer:

Reference:

Approvals:

Process Plan:

*PL*

Date:

*10-5-18*

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2580	Rev D								
100		0.00							
	HandFinish	Memo	0.00						
Hand Finishing	1- Inspect mat'l D2500-1-190 for damage.								
	2- Chemical Conversion Coat as per QSI 005 4.1								
101	QC3- Inspect Part Finish	0.00							
	QC	Memo	0.00						
Quality Control									

*(2X)**Q**MB 10-05-19**2**PL**10/5/19*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Page 2

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

110

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Drill pilot holes using drill jig DT 8149 (Do not use cutting fluid)

2-Open holes to 0.500" as per Dwg D2580 without cutting fluid

3-Deburr and blow out all chips from inside of tube

4-Bond web in place per QSI 015.

□□

A/R Sikaflex-291 batch: M113435 □□□

Sikaflex expire date: 2010/11

Start time: 10:30 AM bond for 12hrs

AWM = 10-5-20

MB  
10-05-20

130



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

ND 10-5-25

②

W/O:		WORK ORDER CHANGES					
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Page 3

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Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

Identify as per dwg & Stock Location: 46

0.00



Packaging

Memo

0.00

Packaging

150

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control



Setup Start



Stop



10/05/25 *[Signature]*  
B/10-5-25  
(2)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**NOTE:** Date & initial all entries

# Picklist Print

Tuesday, May 18, 2010 11:11:17 AM

Page 1

Work Order ID: 58748

Parent Item: D2580-1

Parent Item Name: 205 Skidtube bent detail

Comments: IPP B 01.11.08 Revised Step 9, 10, 12, and 13 SM

Start Date: 5/18/2010

Required Date: 5/31/2010

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
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D2500-1-190

Manufactured No

Each 42.0000 1



Ext'n - I' Beam Tube 4"



MB 10-05-19 ✓

Location

Loc Qty

Loc Code

LG

42

52319

42

D2596

Manufactured No

110 Each 0.0000



Web, 205 Skidtube



2x

B-58421 MB 10-05-20 ✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**NOTE:** Date & initial all entries



**DART**

DESIGN #	DRAWN BY RH	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

**RELEASED**  
07.06.28 #

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

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SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 58748

PS10-5-15

**GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:  
SEE NOTES ON  
PAGE 2 FOR D2580-041 AND  
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

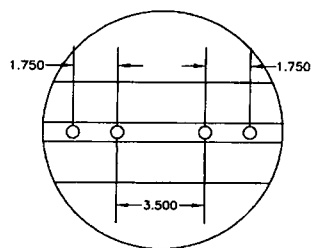
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

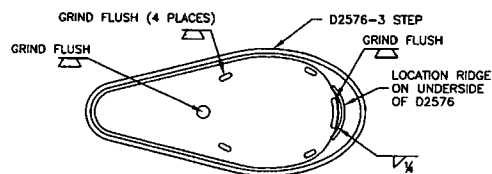
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**NOTE:** Date & initial all entries

**DETAIL A**  
SCALE 5:24

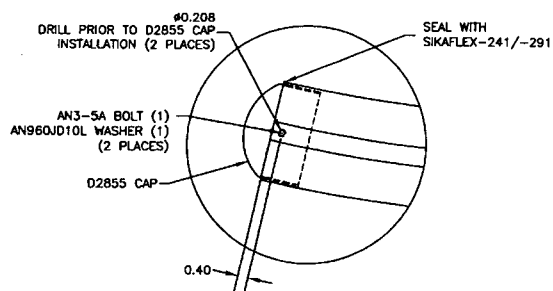


**DETAIL B**  
SCALE 5:24

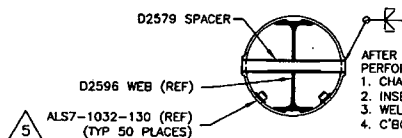


**RELEASED**  
07-06-28-4

**DETAIL C**  
SCALE 5:24

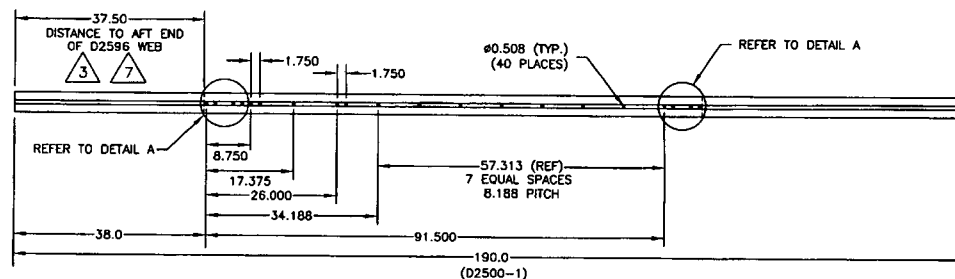


**SECTION D-D**  
SCALE 5:24

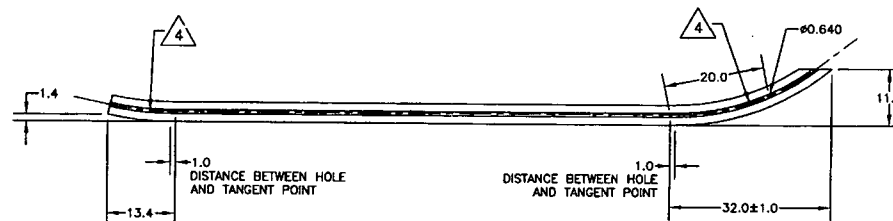


AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:  
1. CHAMFER HOLE 0.050 X 45°  
2. INSERT D2579 SPACER (20 PLACES)  
3. WELD INTO PLACE AND GRIND FLUSH  
4. C'BORE D2579 SPACER TO #0.437 X 1.00 DEEP

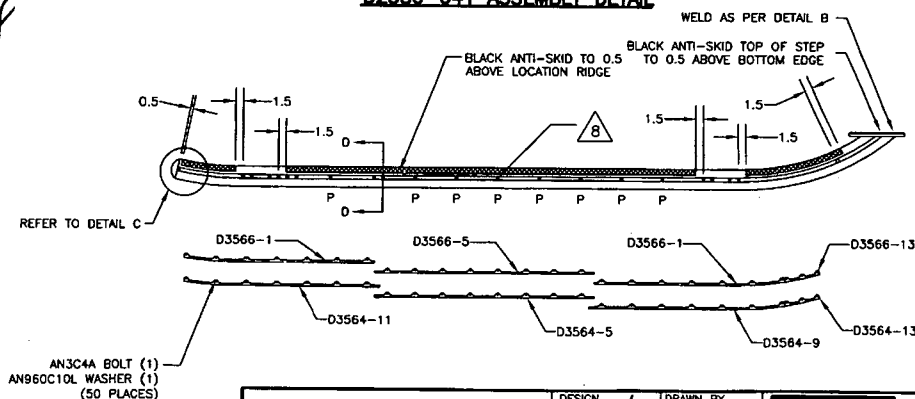
**D2580-1 DRILLING DETAIL**



**D2580-1 BENDING AND CUTTING DETAIL**



**D2580-041 ASSEMBLY DETAIL**



**D2580-041 NOTES**

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

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DESIGN	DRAWN BY	<b>DART</b>	DART AEROSPACE LTD. MARKHAM, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO.	REV. D
DATE		D2580	SHEET 2 OF 3
07.02.27		TITLE	SCALE
		205 SKIDTUBE ASSEMBLY	1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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RELEASED  
07-16-28

Diagram illustrating the grinding locations for the propeller cross-section. The diagram shows a cross-section of a propeller with the following labels and features:

- GRIND FLUSH (4 PLACES)**: Indicated by four small circles on the upper surface of the propeller.
- GRIND FLUSH**: Indicated by a small circle on the lower surface of the propeller.
- D2576-3 STEP**: Indicated by a line pointing to the upper surface of the propeller.
- LOCATION RIDGE ON UNDERSIDE OF D2576**: Indicated by a line pointing to the lower surface of the propeller.

DRILL PRIOR TO D2855 CAP  
INSTALLATION (2 PLACES)

AN3-5A BOLT (1)  
AN960J10L WASHER (1)  
(2 PLACES)

D2855 CAP

SEAL WITH  
SIKAFLEX-241/-291

SEE NOTE ii)

0.40

Diagram of a circular component with various parts labeled: D2579 SPACER, D2596 WEB (REF), and ALS7-1032-130 (REF). A note indicates to perform drilling and bending assembly following specific steps for #0.508 holes.

PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C/BORE D2579 SPACER TO #0.437 X 1.00 DEEP

urlo 58748

37.50  
DISTANCE TO AFT END  
OF D2500 WEB  
3 7  
1.750 1.750  
#0.508 (TYP.)  
(40 PLACES)  
REFER TO DETAIL E  
REFER TO DETAIL A  
8.750  
17.375  
26.000  
34.188  
57.313 (REF)  
7 EQUAL SPACES  
8.188 PITCH  
38.0 91.500  
190.0  
(D2500-1)

TYPICAL CROSS-SECTION OF 12' WIDE, 12' HIGH CONCRETE BRIDGE DECK

5.985

5.338 (REF)

51.340

39.580

5.915

3.630 (REF)

60.508 (8 PLACES)

20.0

60.640

1.4

1.0 DISTANCE BETWEEN HOLE AND TANGENT POINT

13.4

1.0 DISTANCE BETWEEN HOLE AND TANGENT POINT

32.0 ± 1.0

12'

12'

[illegible]

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE  
WITH THE SPACER AT THIS LOCATION

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HAWKESBURY, ONTARIO, CANADA

DRAWING NO.	REV. D
D2580	SHEET 3 OF 3
TITLE	SCALE
205 SKIDTUBE ASSEMBLY	1:24

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